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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: FRYBERG et al.

Group Art Unit: 1774

Serial No.: 09/040,825

Examiner: M. Yamnitzky

Filed: March 18, 1998

Date: July 3, 2003

Title: RECORDING SHEETS FOR INK JET PRINTING

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF UNDER 37 CFR 1.192

Sir/Madame:

This is an appeal from a decision of the Examiner dated June 7, 2002, finally rejecting the claims 3,4 and 6 to 13, which are all the claims remaining in this application.

This application is a continuation application of Serial No. 09/040,825 filed March 18, 1998.

1. REAL PARTY IN INTEREST

The application has been assigned to Ilford Imaging Switzerland GmbH (the "Assignee") on August 31, 1998 recorded in the USPTO at Reel 9493 and Frame 0784. The Assignee is the real party in interest in the present application.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to

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appellant, appellant's legal representative or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. STATUS OF THE CLAIMS ON APPEAL

The case as originally filed contained 11 claims; additional claims 12 and 13 were added during the prosecution.

Claims 1, 2 and 5 have been canceled.

Only claims 3, 4 and 6 to 13 remain pending and are included in this appeal.

There are two independent claims 12 and 13. Claims 3, 4 and 6 to 11 depend directly or indirectly on claim 12.

No claims have been allowed.

4. STATUS OF AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION

Subsequent to the Final Rejection a telephone interview was conducted with the Examiner on August 8, 2002 in which the three patents (Kono, Kashiwazaki and Smigo) which are the basis for the 35 U.S.C. §103 rejection were discussed. No agreement was reached with respect to any amendment that would place the claims in condition for allowance.

An Amendment After Final Rejection was filed December 3, 2002 (Paper No. 28) proposing amendment to independent claim 12. A

Notice of Appeal was simultaneously filed on December 3, 2002 to keep the application pending while the Examiner reviewed the amendment to determine if the claims were in condition for allowance.

According to the Advisory Action of December 19, 2002 (Paper No. 30), the Amendment was entered upon the filing of an Appeal although the Examiner's position remained that the rejection of claims 3, 4 and 6 to 13 under 35 U.S.C. §112, 2nd paragraph and under 35 U.S.C. §103(a) are maintained for reasons of record.

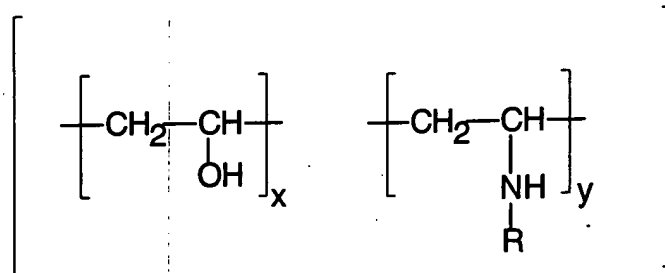
The claims in the APPENDIX to this Brief on Appeal include the amendments to claim 12. Thus the claims on appeal are the claims as amended subsequent to the final rejection.

5. SUMMARY OF INVENTION

The invention provides a recording sheet for ink jet printing having enhanced light fastness properties and improved water fastness. The recording sheet comprises a support onto which are coated one or more layers, where at least one of these layers contains at least one polymeric mordant combined with a binder or mixture of binders.

In particular the light fast recording sheets consist of an opaque or transparent support onto which are coated one or more ink receiving layers. These layers contain at least one copolymeric substance containing primary or secondary amino groups

and vinyl ester derived hydroxyl groups. See page 6 lines 26 to 32 of the specification. The copolymers used in the present invention have the following general structure in receiving sheets for ink jet printing



where

R is H or alkyl with 1 - 6 carbon atoms

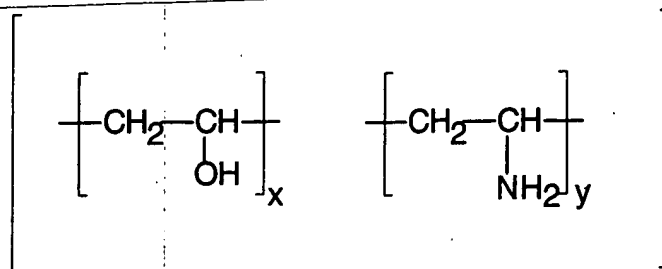
$x + y = 1,$

$y = 0.05 - 0.2,$

$x = 0.8 - 0.95.$

Monomers leading to the unit containing OH groups are for instance vinyl esters as for example vinyl propionate and the like. Monomers leading to the unit containing NHR groups are vinyl amides such as N-vinyl-formamide, N-vinyl-acetamide, N-vinyl-propionamide, N-methy-N-vinyl-formamide, N-methyl-N-vinyl-acetamide and the like. See specification at page 8 lines 6 to 12.

Preferred copolymers of the invention have the structure:



where

$$x + y = 1,$$

$$y = 0.05 - 0.2,$$

$$x = 0.8 - 0.95.$$

The quantity of the copolymer present in the ink receiving layer is between 10 to 75% of the combined amount of copolymer and binder. See specification Example 33 page 29 supporting 10% quantity and Example 31 page 28 supporting 75% quantity; the remaining Examples illustrate quantities within this range. In a preferred embodiment of the invention the binder is gelatin.

The ink receiving sheets according to the invention and described in the Examples were tested and evaluated for water fastness and light fastness according to procedures described at page 14 line 20 to page 15 line 3. Waterfastness was measured and recorded as % loss of optical density. Light fastness was measured and reported as % loss of density. The samples tested show a considerable improvement in light stability which is

achieved by the addition of the copolymers of the invention together with other binders at equal layer thickness. See Table 19 page 28.

6. ISSUES PRESENTED

The issues presented by this appeal are:

A. Whether claims 3, 4 and 6 to 13 are indefinite for failing to particularly point out and distinctly claim the subject matter of the invention; and

B. Whether claims 3, 4 and 6 to 13 are unpatentable under 35 U.S.C. §103 over either U.S. Patent No. 4,801,497 to Kono et al. or U.S. Patent No. 5,747,146 to Kashiwazaki et al. in view of U.S. Patent No. 5,281,307 to Smigo et al.

7. GROUPING OF CLAIMS

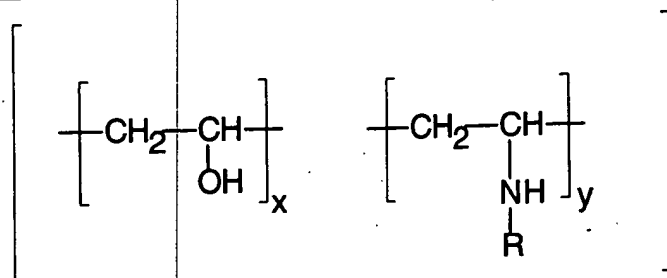
Claims 3, 4 and 6 to 13 are rejected on the same grounds but do not stand or fall together. Claims 3, 4 and 6 to 12 (Group I) and claim 13 (Group II) are two separate groups of product claims defining separate embodiments of the invention and include different limitations.

The two groups of the invention are defined in independent claims 12 and 13 and are described as follows.

Group I. In Claim 12 the recording sheet for ink jet

printing is defined as comprising a support coated with at least one layer receptive for aqueous inks. The layer contains:

(a) at least one copolymer of the general structure:



where

R = H or alkyl with 1-6 carbon atoms

$x + y = 1$

$y = 0.05 - 0.2$

$x = 0.8 - 0.95$; and

(b) a binder or mixture of binders. The quantity of the copolymer is between 10 to 75 weight % of the combined amount of the copolymer and binder. The layer provides the sheet with enhanced light fastness properties.

Claim 3 is dependent on claim 12 and defines the layer as a film.

Claim 4 is dependent on claim 12 and defines the layer as further containing a crosslinking agent.

Claim 6 and 7 are dependent on claim 12 and defines the specific binders used in the invention.

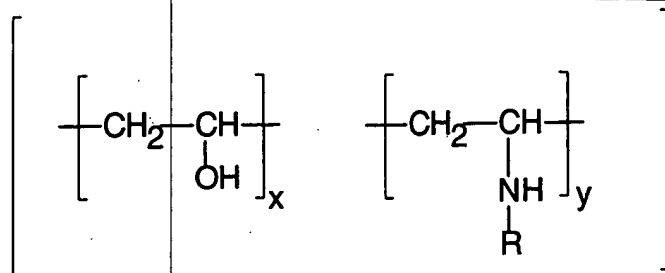
Claims 8, 9, 10 are dependent on claim 12 and defines the

specific crosslinking agents used in the invention.

Claim 11 is dependent on claim 12 and defines R as either hydrogen or CH₃.

Group II. Claim 13 defines a recording sheet for ink jet printing comprising a support coated with at least one layer receptive for aqueous inks. This layer comprises:

(a) at least one copolymer of the general structure:



where

R = H or alkyl with 1-6 carbon atoms

x + y = 1

y = 0.05 - 0.2

x = 0.8 - 0.95; and

(b) a binder comprised of gelatin. The quantity of the copolymer is between 10 to 75 weight % of the combined amount of the copolymer and binder. The layer provides the sheet with enhanced light fastness properties.

8. ARGUMENT

Appellants respectfully traverse the rejection of all the presently pending claims under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention and under 35 U.S.C. §103(a) as unpatentable over the teaching of either U.S. Patent No. 4,801,497 to Kono et al. or U.S. Patent No. 5,747,146 to Kashiwazaki et al. in view of U.S. Patent No. 5,281,307 to Smigo et al.

As will be shown in the following, the "enhanced light fastness properties" language used in the claims is not indefinite or unclear as the Examiner asserts. Further it is respectfully submitted that no motivation has been established for combining the teachings of either Kono or Kashiwazaki and Smigo, as applied by the Examiner, and for this reason the references are not properly combinable under the requirements of 35 U.S.C. §103(a). Furthermore, it is submitted that even if properly combinable, the teachings would have neither disclosed nor would have suggested the presently claimed invention. The prior art references to either Kono or Kashiwazaki and Smigo, when taken alone or in combination, fail to teach or suggest a recording sheet for ink jet printing comprising a support coated with at least one layer containing a copolymer containing primary or secondary amino groups and vinyl ester derived hydroxy groups combined with a binder or mixture of binders where the quantity of the copolymer

is between 10 to 75 weight % of the combined amount of the copolymer and binder and provides the sheet with enhanced light fastness properties.

I. Indefiniteness Rejection

Claims 3, 4 and 6 to 13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

Independent claims 12 and 13 contain the limitation that the recording sheet for ink jet printing has "enhanced light fastness properties." The Examiner maintains that this limitation renders the claims indefinite because it "is not clear what the comparison point is for determining whether a recording sheet comprising said layer has enhanced light fastness properties." The Examiner is not certain if "any recording sheet comprising the invention layer would inherently have enhanced light fastness properties, and if not, what is the basis for determining that a particular recording sheet meets this limitation."

The Examiner further states that the "enhanced light fastness properties" limitation is not clear pointing out that the specification describes one test for light fastness in which % loss of density is determined. The Examiner further asks the

Applicants to provide additional tests or measurements other than % loss of density described in the specification that can or must be enhanced in order to meet the claim limitation of enhanced light fastness properties.

The ink receiving sheets according to the invention and described in the Examples were tested for light fastness according to procedures described at page 14 line 31 to page 15 line 3.¹ Light fastness was measured and reported as % loss of density. The samples tested show a considerable improvement in light stability that is achieved by the addition of the copolymers of the invention together with other binders at equal layer thickness. See Table 19 page 28.

The claims define the recording sheets as having an ink receptive layer made of a copolymer containing primary or secondary amino groups and vinyl ester derived hydroxyl groups combined with a binder or mixture of binders which provides enhanced light fastness properties to the recording sheet. Thus Appellants believe the claims clearly define that all recording sheets of the invention has this property. Further, the Appellant has provided at least one test or measurement to support the

¹ **Light fastness**

Printed sample sheets prepared as described above (in the Examples) are measured on the X-rite® densitometer and exposed in an Atlas Weather-Ometer® with a 2500 W-Xenon lamp under conditions analogue to those set forth in ISO norm 10'977. The samples are exposed to a total illumination of 20 or 40 kJ/cm². The results are reported as % loss of density as determined by the difference of the readings before and after exposure.

increase in light fastness properties of the invention sheets and is not required to provide any additional test data.

II. Prior Art Rejections

Claims 3, 4 and 6 to 13 stand unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 4,801,497 to Kono et al. or U.S. Patent No. 5,747,146 to Kashiwazaki et al. in view of U.S. Patent No. 5,281,307 to Smigo et al.

A. U.S. Patent 4,801,497 to Kono et al.

Kono et al. teaches a recording medium comprising an ink receiving layer on a substrate wherein the ink receiving layer contains a cationically modified product of polyvinyl alcohol and a water soluble polymer having no active hydrogen. The coatings in Kono provide good ink receptivity and sharpness of recorded images during ink jet printing.

B. U.S. Patent No. 5,747,146 to Kashiwazaki et al.

Kashiwazaki et al. discloses a printing medium comprised of a base material and an ink receiving layer. The ink receiving layer comprises a binder wherein inorganic fine particles are partly projected therefrom.

C. U.S. Patent No. 5,281,307 to Smigo et al.

Smigo discloses paper making process that incorporates a copolymer of vinyl alcohol and vinyl amine along with a crosslinking agent to improve paper strength and tear resistance. The copolymer is added to the pulp not as a binder in a coating layer as in the present invention.

II. Appellants submit that Kono or Kashiwazaki and Smigo are not properly combinable under the requirements of 35 USC 103.²

The present invention, in contrast to the coatings in Kono and Kashiwazaki, provide a recording sheet for ink jet printing comprising a support coated with at least one layer containing a copolymer containing primary or secondary amino groups and vinyl ester derived hydroxy groups combined with a binder or mixture of

² In Hodosh v. Block Drug Co. Inc., 229 U.S.P.Q. 182, 187, fn. 5 (Fed. Cir.), motion to vacate denied, 229 U.S.P.Q. 783 (Fed. Cir.), cert. denied, 479 U.S. 827 (1986), the Federal Circuit listed the "tenets of patent law that must be adhered to when applying § 103." The tenets that apply to an ex parte proceeding include:

(1) the claimed invention must be considered as a whole (though the difference between claimed invention and prior art may seem slight, it may also have been the key to advancement of the art);

(2) the references must be considered as a whole and suggest the desirability and thus the obviousness of making the combination;

(3) the references must be viewed without the benefit of hindsight vision afforded by the claimed invention;

(4) "ought to be tried" is not the standard with which obviousness is determinedId. (Citations ommitted.)

binders where the quantity of the copolymer is between 10 to 75 weight % of the combined amount of the copolymer and binder and provides the sheet with enhanced light fastness properties.

The Examiner argues that both Kono and Kashiwazaki describe use of a cationically modified polyvinyl alcohol within the claimed range of the invention in an ink receptive layer. However, she acknowledges that "neither Kono et al. nor Kashiwazaki et al. explicitly disclose a copolymer of the general structure set forth in the pending claims" (Paper No. 6 page 8) but contends that Smigo et al discloses a paper coated with a polyvinyl alcohol/vinyl amine copolymer as claimed in the invention and thus in combination with either Kono or Kashiwazaki render the invention obvious.

The Examiner has incorrectly characterized the Kono and Kashiwazaki references as disclosing the invention combination of copolymer and binder (or binders) where the copolymer is present in the range of 10 to 75 weight % of the combined amount of copolymer and binder.

The Examiner states that Kono et al. teaches that the amount of Polymer A should be in the range of 1 part by weight to 33 parts by weight based on 100 parts by weight of catPVA (Col. 6 lines 16-35). This equates to an amount of catPVA in the range of 99 to 75% by weight based on the combined weight of catPVA and Polymer A. The Examiner further argues that the Kono amount of

75% by weight is within the range required by the present claims.

Appellants submit that the Kono reference does not teach a catPVA range between 75 to 99% by weight but in actuality the range supported in the Examples is between 77 to 90% by weight which is outside the range required by the present claims. See Kono Col. 10, Examples 1-5.

In fact the Kono reference teaches away from the present invention as provided in comparative example 3 at Col. 11 where the catPVA is present in the amount of 50% by weight of the combined amount of copolymer and binder. As illustrated in Table 1 and described in Col. 12 the overall evaluation of this sample was unacceptable according to the teaching of Kono.

The Kashiwazaki reference teaches an ink receiving layer made of inorganic fine particles and a binder. The binder layer is constructed to have a structure that resin particles are held in a continuous film of cationically modified polyvinyl alcohol in which the inorganic fine particles are partly projected from the surface of the coating (Col. 8 lines 27 to 36).

The resin emulsions described in Kashiwazaki are not the same binder system used in the present invention and are quite distinct. As described in Col. 7 lines 60 to 65 "the content in terms of solids of these aqueous resin emulsions in the binder layer is preferably within a range from 0.1 to 50% by weight, more preferably from 1 to 30% by weight based on the content of

cationically modified polyvinyl alcohol." Thus, the Examiner's assertion that the Kashiwazaki patent utilizes amounts of catPVA within the scope of the presently claimed range is unsupported.

Kashiwazaki describes the aqueous resin emulsion as having a minimum film forming temperature of at least 20°C. This provides for fusion bonding between resin particles in the emulsion and film formation by heating and allows the emulsion particles to maintain their particle form. As previously stated the resulting ink receiving layer has a structure that resin particles are held in a continuous film of the cationically modified polyvinyl alcohol and the inorganic fine particles are partly projected from the surface of the coating layer.

Although the arguments presented thus far support that the Kono and Kashiwazaki are distinct from the present invention the Examiner argues that the only distinction is in the use of the specific copolymer of the invention. She maintains that the copolymers disclosed in Smigo et al. are polyvinyl alcohols containing amino groups and are inherently cationic and that it would be obvious to one of ordinary skill in the art at the time of the invention to use the copolymers disclosed by Smigo as the cationically modified polyvinyl alcohol used in the recording medium or Kono or Kashiwazaki.

Appellants submit there is no teaching, suggestion, or incentive in the prior art to modify or to combine the teachings

of the prior art in the manner suggested by the Examiner. Absent some teaching or suggestion supporting the combination, the Examiner cannot establish obviousness based on the combination. In re Fitch, 23 U.S.P.Q.2d 1780, 1783 (C.A.F.C. 1992).³

Further, it is "impermissible to use the claimed invention as an instruction manual or template to piece together the teachings of the prior art so that the claimed invention is rendered obvious." Id. at 1784 In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). "[O]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

In this case, Appellants respectfully submit that the Examiner used hindsight to combine the prior art references and reconstruct Appellant's invention. In particular, there is no teaching of the desirability of combining the copolymers described in the Smigo process with the ink receiving coatings described in

³ "Obviousness cannot be established by combining the teachings of prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so." ACS Hosp. Systems, Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). It is well-settled that the mere fact that the prior art could be modified to form the invention would not make that modification obvious unless the prior art suggested the desirability of the modification. In re Laskowski, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989); In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

either Kono or Kashiwazaki. Instead, both Kono and Kashiwazaki teach away from the present invention by utilizing greater amounts of catPVA (Kono - over 75% by weight) and by providing a binder layer in which solid inorganic particles are embedded to increase sharpness in printing (Kashiwazaki). Neither Kono nor Kashiwazaki teach the binder system used in the invention which utilizes a copolymer containing primary or secondary amino groups and vinyl ester derived hydroxyl groups combined with at least one other binder selected from the group consisting of polyvinyl alcohol, gelatine, starch, carboxymethyl cellulose, hydroxyethyl cellulose, hydroxypropyl cellulose, hydroxymethyl cellulose, methoxyethyl cellulose, gum arabic, polyvinyl pyrrolidone, polyvinyl-methyl pyrrolidone and casein; where the copolymer is present in an amount between 10 to 75 weight % of the combined amount of copolymer and binder.

There is also no motivation to look at the teachings of either Kono or Kashiwazaki and combine it with Smigo which is distinct from the invention. In contrast to the invention where the copolymer containing primary or secondary amino groups and vinyl ester derived hydroxyl groups are combined with a binder or mixture of binders to create a coating layer, the copolymers in Smigo are added and incorporated to the pulp in order to create a paper having increased strength and tear resistance.

It is well-settled that the mere fact that the prior art

could be modified to form the invention would not make that modification obvious unless the prior art suggested the desirability of the modification. In re Laskowski, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989); In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed Cir. 1984). It is submitted that the cited art does not teach or suggest the desirability of modifying Kono or Kashiwazaki to incorporate the copolymer of Smigo et al. to obtain the present invention. Further, using the copolymer disclosed in Smigo would not result in the recording sheet of the invention which is directed to a combination of the copolymer with a binder or mixture of binders where the copolymer is present in the amount of 10 to 75 weight % of the combined amount of copolymer and binder.

In Appellants Amendment After Final Rejection filed on December 3, 2002 (Paper No. 28) support was submitted illustrating that if the recording medium in either Kono or Kashiwazaki was modified to include the copolymer described in Smigo the resulting ink-receptive layer would not result in the invention recording sheet and would not have enhanced light fastness properties.⁴

⁴ Experimental coatings of recording sheets for ink jet printing were made and tested. A support made of polyethylene coated paper of 175 μ m thickness (produced by Schoeller GmbH, Germany) was coated with a bar coater with solutions having the compositions given in Table 1 (parts per weight). The coated samples were dried at a temperature of 30° C for 30 minutes. The dried coatings had a thickness of 10 μ m.

Coating 1 corresponds to Example 3 of Kono et al. (US 4,801,497); Coating 2 corresponds to Example 3 of Kono et al. (US 4,801,497) where Kono's copolymer has been replaced by Kashiwazaki's copolymer (US 5,747,146); Coating 3 corresponds to example 3 of Kono et al. (US 4,801,497) where Kono's copolymer has been replaced by Smigo's copolymer (US 5,281,307) - Smigo's copolymer is the same copolymer as claimed in our application for recording sheets for ink jet printing; and Coating 4 corresponds to example "Comparative Example 2" of Kono et al. (US 4,801,497).

Table 1

Component / Example	1	2	3	4
Polyvinyl Pyrrolidone PVP K-90	3	3	3	3
PVA-CM-318	10			
PVA-C-506		10		
PVAA			10	
Moviol 2688				10

Polyvinyl Pyrrolidone PVP K-90 is available from BASF; the cationically modified product of polyvinyl alcohol PVA-CM-318 is available from Kuraray C., Ltd.; the cationically modified product of polyvinyl alcohol PVA-CM-506 is available from Kuraray C., Ltd.; PVAA is available from Air Products; and Moviol 2688 (88 % hydrolyzed polyvinyl alcohol) is available from Clariant.

The experimental recording sheets for ink jet printing were printed with an Epson SP 890 ink jet printer or a HP 970 ink jet printer using original inks. The printer used in the patent application IRIS 3024 with Ilfojet Galerie® inks could not be used anymore, as it is no longer available.

Printed sample sheets prepared as described above are measured on the X-rite® densitometer and exposed in an Atlas Weather-Ometer® with a 2500 W-Xenon lamp under conditions analogue to those set forth in ISO norm 10'977. The samples were exposed to a total illumination of either 10 or 20 Mluxh. This corresponds roughly to 20 kJ/cm² or 40 kJ/cm². The results are reported in the following tables as an average % loss of the densities of the colors cyan, magenta, yellow, red, green, blue and black as determined by the difference of the readings before and after exposure.

Table 2: Printer Epson SP 890; 10 Mluxh

Sample No	Visual Loss in % of Initial Density
1	9.9
2	13.3
3	18.1
4	16.7

Table 3: Printer Epson SP 890; 20 Mluxh

Sample No	Visual Loss in % of Initial Density
1	16.0
2	19.8
3	19.8
4	22.9

The results in Tables 2 and 3 clearly indicate that Smigo's copolymer in Kono's layer (Example 3) has a lower light stability than either of Kono's original copolymers (Examples 1 and 2). The light stability of a layer containing Smigo's copolymer in Kono's layer (Example 3) is similar to the light stability of Comparison Example 2 of Kono not containing a cationically modified polyvinyl alcohol (Example 4).

Finally, there is clearly no suggestion in Kono, Kashiwazaki or Smigo of the advantage obtained by providing Appellants' recording sheet. Insofar as these patents, taken alone or in combination, do not teach or suggest Appellant's claimed product. Appellant believes that the pending claims are patentable over these references.

Table 4: Printer HP 970; 10 Mluxh

Sample No	Visual Loss in % of Initial Density
1	17.5
2	14.5
3	18.3
4	20.3

Table 5: Printer HP 970; 20 Mluxh

Sample No	Visual Loss in % of Initial Density
1	21.2
2	18.1
3	24.6
4	23.5

The results in Tables 4 and 5 clearly indicate that Smigo's copolymer in Kono's layer (Example 3) has a lower light stability than either of Kono's original copolymers (Examples 1 and 2). The light stability of a layer containing Smigo's copolymer in Kono's layer (Example 3) is similar to the light stability of Comparative Example 2 of Kono not containing a cationically modified polyvinyl alcohol (Example 4).

The results of these supplementary experiments clearly indicate that the recording medium of Kono, as modified to include the copolymer disclosed by Smigo in Kono's ink-receptive layer, do not inherently have enhanced light fastness properties. In fact, the recording medium of the invention provides enhanced light fastness properties as illustrated in Applicant's specification where the loss in % of initial density is less than 6%, typically less than 3% (see samples 2-4, Table 3; and samples 7,8, Table 6). Accordingly, the present invention as defined in the claims is not obvious over the cited references either alone, or in combination. It is believed that the Examiner's rejections have been overcome and should be withdrawn.

III. Summary

The cited references, when taken alone or in combination, do not teach or suggest a recording sheet comprised of a combination of a binder or mixture of binders with a copolymeric substance containing primary or secondary amino groups and vinyl ester derived hydroxyl groups. Further, it is submitted that the rejection is based on hindsight reconstruction of Appellant's invention, using the application as a guide to piece together the teachings of the prior art. Therefore, the teachings of either Kono or Kashiwazaki are not properly combinable with the teachings of Smigo et al.

Accordingly, it is believed that the rejection under 35 U.S.C. §103 is untenable because no one skilled in the art on the basis of the prior art would have determined that the copolymer described in the Smigo process could be incorporated into the coating layers of either Kono and Kashiwazaki to obtain the present invention as claimed.

It is thus respectfully requested that the Examiner's rejection of claims 3, 4 and 6 to 13 be reversed. It is believed the application and the claims are in condition for allowance.

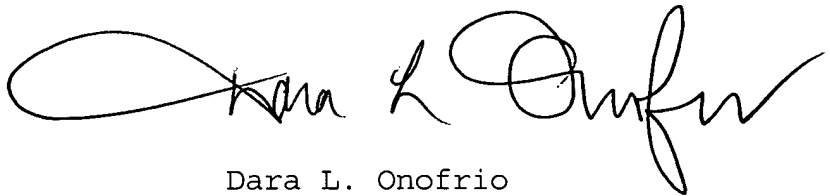
WAIVER OF ORAL HEARING

Appellants will rely on their Brief on Appeal in this case and waives their right to present oral argument at a Hearing.

The fees set forth in 37 CFR 1.17(f) and 1.17(r); and three copies of this Brief are enclosed.

Respectfully submitted,

ONOFRIO LAW
Attorneys for Appellants

A handwritten signature in black ink, appearing to read 'Dara L. Onofrio', with a large, stylized initial 'D'.

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APPENDIX

3. A recording sheet for ink jet printing according to claim 12 wherein said layer forms a film.

4. A recording sheet for ink jet printing according to claim 12 wherein said layer further contains a crosslinking agent.

6. A recording sheet according to claim 12 wherein said binder or binders are selected from the group consisting of polyvinyl alcohol, gelatine, starch, carboxymethyl cellulose, hydroxyethyl cellulose, hydroxypropyl cellulose, hydroxymethyl cellulose, methoxyethyl cellulose, gum arabic, polyvinyl pyrrolidone, polyvinyl-methyl pyrrolidone and casein.

7. A recording sheet according to claim 12 wherein said binder or binders are selected from the group consisting of polymers or copolymers derived from acrylic acid and esters of acrylic acid.

8. A recording sheet according to claim 4 wherein said crosslinking agent is selected from the group consisting of triazine derivatives, epoxides, aldehydes, vinyl sulfones and carbamoyl derivatives.

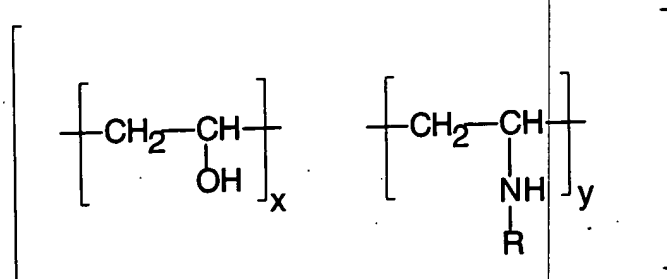
9. A recording sheet according to claim 4 wherein said crosslinking agent is selected from the group consisting of triazine derivatives and, carbamoyl derivatives.

10. A recording sheet according to claim 4 wherein said crosslinking agent is hydroxy-dichloro-1, 3, 5-triazine or 2-(4-dimethylcarbamoyl-pyridino)-ethane-sulfonic acid.

11. A recording sheet according to claim 12 where R is H or CH₃.

12. A recording sheet for ink jet printing comprising a support coated with at least one layer receptive for aqueous inks; wherein said layer contains:

(a) at least one copolymer of the general structure:



where

R = H or alkyl with 1-6 carbon atoms

x + y = 1

y = 0.05 - 0.2

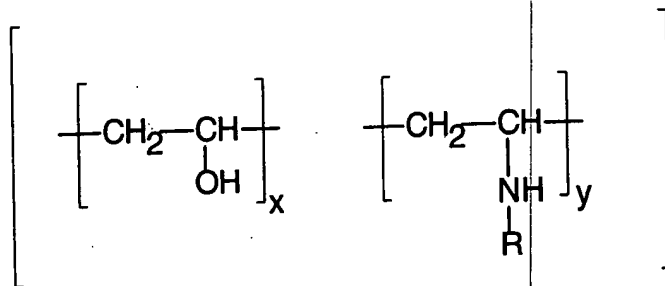
$x = 0.8 - 0.95$; and

(b) a binder or mixture of binders;

(c) wherein the quantity of said copolymer is between 10 to 75 weight % of the combined amount of said copolymer and binder and said layer provides the sheet with enhanced light fastness properties.

13. A recording sheet for ink jet printing comprising a support coated with at least one layer receptive for aqueous inks; wherein said layer comprises:

(a) at least one copolymer of the general structure:



where

R = H or alkyl with 1-6 carbon atoms

$$x + y = 1$$
$$y = 0.05 - 0.2$$
$$x = 0.8 - 0.95; \text{ and}$$

(b) a binder comprised of gelatin;

(c) wherein the quantity of said copolymer is between 10 to

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75 weight % of the combined amount of said copolymer and binder and said layer provides the sheet with enhanced light fastness properties.